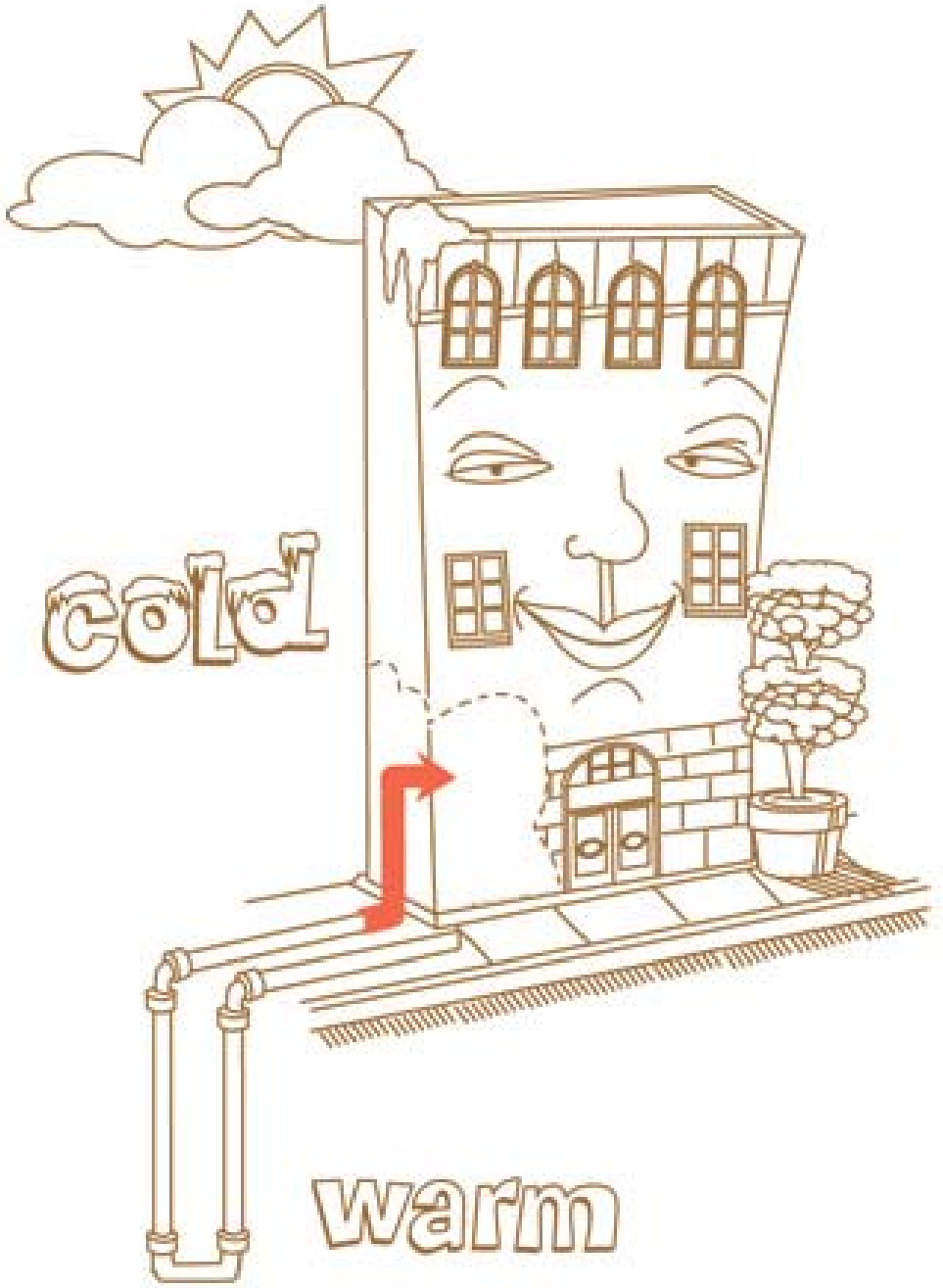

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Creativity in Green Building And Accomplishments in Creating Value

December 1, 2006

Smart Growth Conference

Camper’s Ethic

It is every person’s responsibility
to leave each place they visit
better than they found it.

Earth Pledge

We *promote technologies and systems* that have the potential to improve the environment while *protecting human health*. Our portfolio currently focuses on *local food* systems, *waste harvesting*, *brownfield management*, *green roofs* and innovative and *eco-friendly materials* for apparel and interiors. In each case, we pursue a strategy of promoting research and developing applications while drawing the media's attention to create public awareness. This is how all big things get started. And, at the end of the day, we're *venture capitalists* acting on the Earth's behalf.




Rural/Urban Interface

Urban

- Improve air quality
- Reduce Urban Heat Island Effect
- Create green space
- Provide access to local foods
- Encourage use of renewable, reusable and non-polluting materials

Rural

- Reduce landfilling
- Preserve oil resources
- Support local producers
- Conserve biodiversity

A bee enjoying the Earth Pledge green roof

Earth Pledge

Leaders in Innovation

1995 Organized the first Caribbean Conference on Sustainable Tourism

1996 Drilled the first geothermal wells in New York City

2000 Produced the first sustainable cuisine cooking classes in New York City

2000 Installed the first engineered green roof in New York City

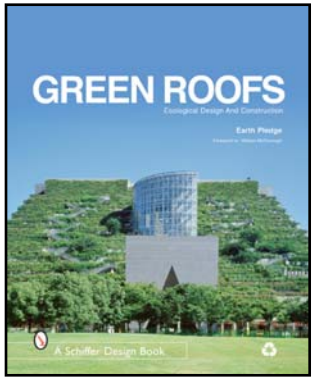
2004 Published the first comprehensive book on green roofs, including case studies

2005 Produced the first runway fashion show featuring international designers using sustainable textiles during NY Fashion Week

2005 Initiated the first local, scientific green roof monitoring program

2006 Installed the first in-situ green roof research station to monitor temperature and stormwater

2006 Commissioned the first thermophilic anaerobic digester in North America



The Urban Heat Island Effect

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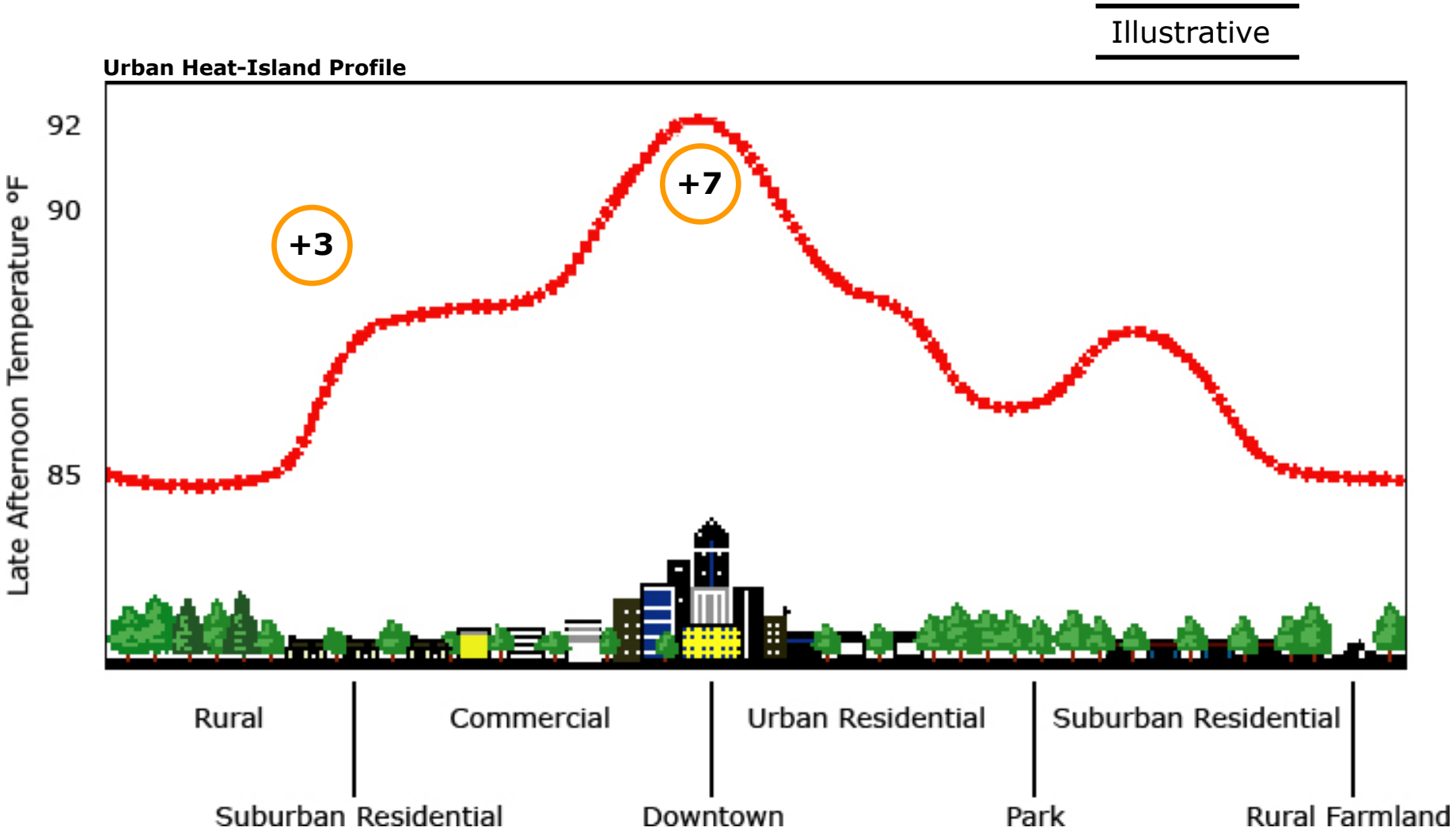

Smart Growth - What if

New homes: Built to the eco homes standard

- Reduce green house gas emissions generated from a home by 32%
- Reduce water use in a home by 39%
- Increase building cost 2%

Based on WWF estimate.

Smart Growth - Reduce, Reuse, Recycle

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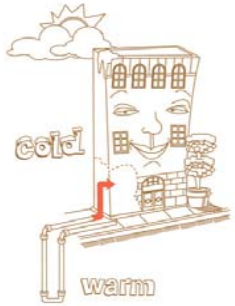
Energy



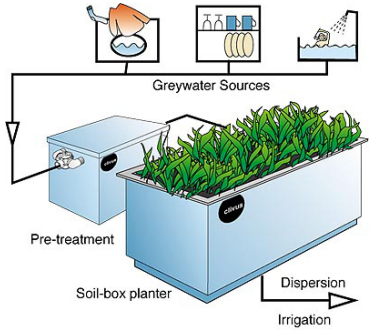
Heat pump / Geothermal

Solar thermal / PV

Wind Power

Water

Rainwater harvesting



Greywater reuse

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Composting toilets / low flow fixtures

Waste

Recycle

Reduce construction waste

Waste = Energy

Green Roofs

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Ford River Rouge Center, Dearborn, MI, image courtesy of William McDonough + Partners

Green Roofs

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Green roofs deliver many environmental and economic benefits.

Benefits

Stormwater Management	*- Detains up to 80% of stormwater* *- Filters runoff* *- Lowers CAPEX required to meet regulations*
Energy Efficiency	*- Increased surface reflectivity* *- High emissivity - ability to divert heat* *- Lowers roof temperatures 80° F*
Building Durability	*- Roof protected from damaging UV rays* *- Extends roof life 2x-3x*
AC System Savings	*- Smaller AC plant size, longer life* *- AC unit runs less often, economizer period extended* *- Lowers AC CAPEX*
Indoor Air Quality	*- Roof vegetation filters NO2, SO2, particulates* *- Increases air circulation*
Urban Open Space	*- Biodiversity* *- Potential for accessible open space*

Cost Analysis ($/sq ft)

Factor	Impact
Incremental green roof cost	$10.00
Increased durability of the roof	>$23.00
Lower stormwater retention/detention	>$11.00
Lower air conditioning plant cost	>$ 4.00
FAR credit impact – value of "free land"	>$50.00

Green Roofs - Application in Connecticut

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Situation

Stormwater

- 14 acre brownfield site
- 7 buildings
- more than 1 million square feet
- impervious area increased by approx. 15%

Complication

CT - DEP

Pretreatment Water Quality Volume and Water Quality Flow

Watershed	Water Quality Volume CF (Ac-Ft)	Water Quality Flow
Street North	17,044 (0.391)	4.40
Street South	5,480 (0.126)	2.0

Solution

Incorporate green roof techniques in the development in order to meet CT-DEP

Other benefits

- Lower energy use
- Smaller HVAC units
- Increase rental value
- Roof durability

Dreaming Green

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Filderstadt parkade, Stuttgart

Living screen with planter

San Antonio Corporate Centre, Costa Rica Photo by Randy Sharp

- Climbers reduce solar heating, most effective on the walls that face the sun.
- Effective at trapping dust and pollutants in the air.

Bioclimatic Skyscrapers

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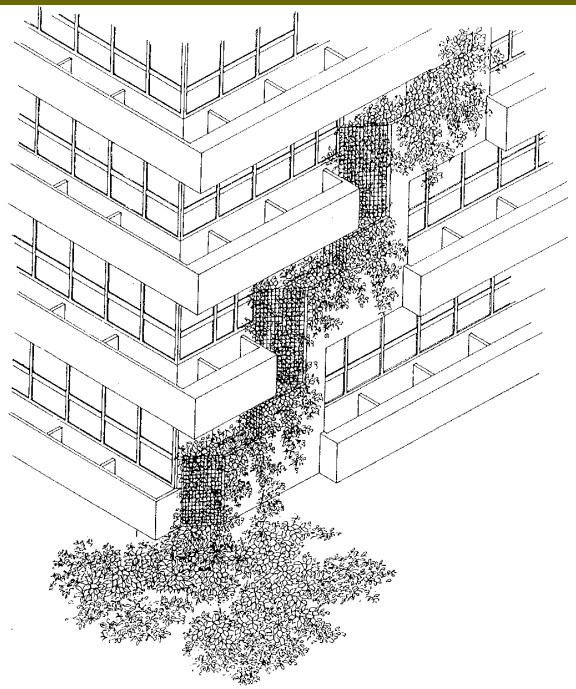
Menara Mesiniaga, Malaysia, photo by Ken Yeang



IBM Plaza, Drawing by Ken Yeang

Bioclimatic skyscraper by T.R. Hamzah & Yeang

- Lower building costs and energy consumption.
- Passive approach: sun shading, louvers, solar skycourts, terraces, wind catchers.
- Green roofs connected to the ground and to green corridors.
- Vertical gardens with water channels irrigate planters and green facades.

Green & Solar Roofs

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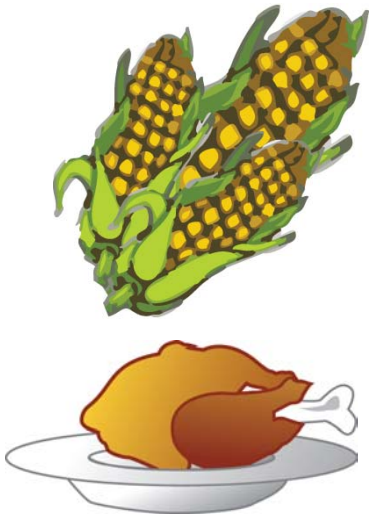
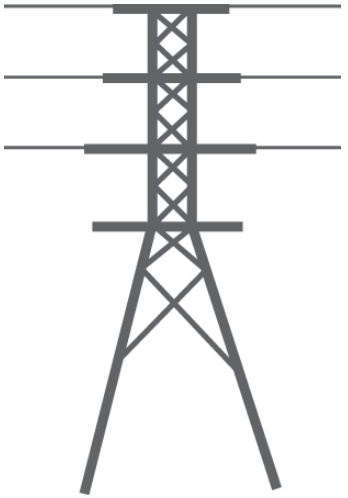
Future Dream

Anaerobic digester innovation



6 tons of organic waste
+
14 tons green waste

Anaerobic Digester



12MW of energy

Earth Pledge Experience

Client	Description
One Bryant Park	*Water quality testing for new green roof*
Deborah Berke & Partners Architects, LLP	*Design oversight, vendor selection, specifications determination for new green roof in Bedford, NY*
ConEdison	*Economic justification and type selection for corporate-wide green roof application to substations*
Gratz Industries	*Quantity and quality measurements for installed green roof*
Henry Company	*Installation, evaluation and construction evaluation*
Center for Urban Community Services	*Design oversight, vendor selection, specifications determination and construction evaluation for 1510 Southern Boulevard*
West Side Federation for Senior and Supportive Housing	*Design oversight, vendor selection, specifications determination and construction evaluation for PSS Grandparents Apartments*
Whole Foods	*Anaerobic Digester Feasibility Study*
Bank of America	*Anaerobic Digester Feasibility Study*
United Technologies Corporation	*Anaerobic Digester Feasibility Study*